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IDENTIFYING SALIENT BELIEFS ABOUT LEISURE ACTIVITIES : FREQUENCY OF ELICITATION VERSUS RESPONSE LATENCY

by

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Identifying Salient Beliefs About Leisure Activities:

Frequency of Elicitation Versus Response Latency

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Abstract

Sets of 16 beliefs about the consequences of each of six leisure activities were selected in a pilot study by means of free elicitation. The beliefs varied in salience (salient versus nonsalient), valence (positive versus negative), and type (instrumental versus affective). In the main study, 69 college students expressed their agreement with each belief, evaluated the consequences involved in the beliefs, and rated each leisure activity on four evaluative scales as a standard measure of attitude. The latencies of these responses were used to assess accessibilities of beliefs and attitudes in an effort to quantify degree of salience. Accessibility of beliefs was found to increase significantly with frequency of elicitation in the pilot study (salience) and with the judged favorability of the consequences. Salience was further found to be related to degree and extremity of agreement. Accessibility was also found to moderate the correlation between beliefs and attitudes posited in the expectancy–value model of attitude. The correlation between a given belief and the direct attitude measure increased with the belief's accessibility, and the correlation between a measure of attitude based on the set of salient beliefs and the standard attitude measures increased with the accessibility of the attitude. Implications for the identification and measurement of perceived benefits and costs of leisure are discussed.

The urban recreation and parks movement in the United States, Canada, and England that began in the middle of the nineteenth century was based on the idea that recreation is good and wholesome for people, that leisure has "social merit" (see Levine, 1971), an idea echoed subsequently in the 27 reports of the Outdoor Recreation Resources Review Commission (ORRRC, 1962). However, a group of behavioral scientists commissioned to evaluate the contributions of recreation to personal well being saw only limited empirical evidence, contending that the purported benefits of urban and outdoor recreation, if not exaggerated, were at least poorly documented (e.g., ORRRC Report No. 22, 1962, pp. 233-242). Attempts to remedy this situation abound, and the results of leisure research now indicate that recreational activities can have considerable benefits to individuals, groups, and to society in general, ranging from physical fitness and personal growth to family bonding and economic well-being (see Driver, Brown, & Peterson, 1991a).

Efforts to document the benefits of leisure come from a variety of disciplines, including economics, sociology, anthropology, physiology, and various areas of psychology. The unique contribution of social psychology is its focus on the subjective experience of outdoor recreation, on the beliefs people hold about the consequences of leisure, and on the relations of these beliefs to attitudes toward leisure and to actual participation in leisure activities. The starting point for such an analysis is proper identification of leisure beliefs, an issue of considerable theoretical and practical importance in leisure research (Driver, Brown, & Peterson, 1991b; Peterson , Driver, & Brown, 1990). The major aim of the research reported in present article was to compare alternative methods for the empirical identification of beliefs about the benefits of leisure. To provide the necessary background, we briefly review the conceptual framework that served as the basis for the present research.

According to current attitude theory, the perceived costs and benefits of a given activity determine a person's attitude toward that activity (see Eagly & Chaiken, 1993; Fishbein & Ajzen, 1975). Consistent with this view, the attractiveness of a recreational activity should be related to the benefits it is perceived to provide, as well as to its perceived costs. A more formal statement of these relations can be found in what is perhaps the most widely used theory of attitude, the expectancy–value (EV) model. This model assumes that attitudes are based on expectations or beliefs concerning the attitude object. One of the first and most complete statements of the EV model can be found in Fishbein's (1963, 1967) summation theory of attitude, although a somewhat narrower version was proposed earlier by Rosenberg (1956). In Fishbein's theory, people's evaluations of, or attitudes toward, an object are determined by their salient beliefs about the object, where a belief is defined as the subjective probability that the object has a certain attribute (Fishbein & Ajzen, 1975). The terms "object" and "attribute" are used in the generic sense and they refer to any discriminable aspect of an individual's world. For example, a person may believe that there is a 70% chance that mountain climbing causes physical injury. The belief object, "mountain climbing," is linked to the attribute, "causes physical injury," with a subjective probability of 0.70.

Each belief thus associates the attitude object with a certain attribute. According to the EV model, a person's overall attitude is determined by the subjective values or evaluations of the attributes associated with the attitude object and by the strength of these associations. Specifically, the evaluation of each attribute contributes to the attitude in direct proportion to the person's subjective probability that the object has the attribute in question. The basic structure of the model is shown in Equation 1, where A is the attitude toward some object, b_i is the strength of the belief (the subjective probability) that the object has attribute i, e_i is the evaluation of attribute i, and n is the number of beliefs associated with the object.

$$A \propto \sum b_i e_i \qquad [1]$$

People can, of course, form many different beliefs about an object, but it is assumed that they can attend to only a relatively small number (perhaps 5 to 9) at any given moment. It is these *salient* beliefs that are considered to be the prevailing determinants of a person's attitude. In past work with the expectancy–value model of attitude, it has been recommended practice to conduct a pilot study in which salient beliefs about a given attitude object are elicited in a free-response format (see Ajzen & Fishbein, 1980). For example, when the object in question is a person or group of people, salient beliefs are elicited by asking respondents to list the characteristics, qualities, and attributes of the person or group. In a similar manner, when the attitude object is a behavior, such as mountain climbing, the respondents can be asked to list the advantages and disadvantages of mountain climbing, and anything else that comes to mind when they think about engaging in this activity. The particular beliefs listed by a given respondent are considered to be that person's salient beliefs, and the most frequently mentioned beliefs in the pilot sample constitute the set of beliefs salient in the research population, termed *modal* salient beliefs (Fishbein & Ajzen, 1975). Most research with the summation model has relied on the frequency–of–elicitation method to identify modal salient beliefs, the focus of the present investigation.

Once the set of salient beliefs has been identified, it is possible to assess, with respect to each belief, how strongly it is held and how positively or negatively its attribute is evaluated. Belief strength is typically measured on a seven-point semantic-differential-type scale, with endpoints defined as *probable–improbable* or *likely–unlikely*; and attribute evaluations are usually obtained by using the same type of scale with *good–bad* or *desirable–undesirable* as endpoints. For example, the belief statement "Mountain climbing exposes a person to physical danger" could be rated on the

likely–unlikely continuum, and the evaluation of the attribute "being exposed to physical danger" could be rated on the *good–bad* dimension.

In accordance with the EV model, a measure of attitude can be obtained by computing the products of belief strength and attribute evaluation, and summing the products across all salient beliefs. This measure can be compared with any other measure of the same attitude, for example, a Likert scale or an evaluative semantic differential. In comparisons of this kind, attitude scores obtained by the standard scaling procedure are viewed as criteria against which to evaluate the validity of scores derived from salient beliefs.

Essential to the summation model of attitude is the stipulation that all salient beliefs, and only salient beliefs, be considered. Responses to any set of carefully selected belief statements can be used to *assess* an attitude, but to gain an understanding of the factors that *determine* the attitude, it is necessary to examine salient associations to the attitude object (Fishbein, 1963; Fishbein & Ajzen, 1975). According to the summation model, the overall evaluation of a leisure activity at a given point in time (i.e., the attitude toward the activity) is formed on the basis of information readily available in memory, that is, on the basis of salient beliefs about the activity. It is thus important to have available a valid procedure for identifying the set of beliefs that are salient for a given individual or in a given population. Although the free elicitation method of identifying salient beliefs has met with considerable success (see Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), it is not without limitations. Perhaps most obvious, no clear criterion exists for deciding on a cut-off point in the sequence of elicitation. Given sufficient time, a person can produce an indefinite number of beliefs about virtually any object or issue, but presumably only the first few were initially salient. It is unknown at which point people stop emitting salient beliefs and begin listing beliefs that were not salient prior to the elicitation session. Similarly, in the construction of a set of modal

salient beliefs for a given population, the cut-off criterion is rather arbitrary. To be included in the modal set, an investigator may require that a belief be mentioned by at least half the respondents in the pilot sample, by 75% of the respondents, or by any other proportion of respondents. Alternatively, it might be required that the beliefs included in the modal set account for a certain percentage, perhaps 50%, of all beliefs listed (see Fishbein & Ajzen, 1975). Whichever criterion is adopted, it is to some extent based on an arbitrary decision by the investigator.

To elucidate the issues involved, it is useful to distinguish between two types of probabilities associated with beliefs. The first is the likelihood that a given belief will spontaneously be emitted in a specified period of time. Degree of salience is assumed to be directly proportional to this likelihood. The second probability is subjective; it is the perceived likelihood or confidence that the attitude object has a certain attribute. It may be argued that both, the probability of emission and the perceived probability of an object–attribute link, are a function of *belief strength*; i.e., they are both a function of the strength of the association between the object and the attribute involved in a belief.

Note, however, that strong agreement or disagreement with a belief statement does not always imply a salient or strong belief. Consider, for example, the statement, "White-water rafting cannot be done in a swimming pool." Most people would strongly agree with this statement, yet it is not a belief they are likely to have given any thought to before, and few if any respondents would emit it spontaneously. Conversely, high likelihood of emission does not necessarily imply a strong belief in the sense of strong agreement or disagreement with the belief statement. For instance, in free elicitation of beliefs about mountain climbing, many people spontaneously emit the belief that this activity can make you tired and exhausted, yet most agree only moderately with a belief statement that makes this connection (Ajzen & Driver, 1991).

Questions associated with the strength or salience of beliefs and attitudes have become a major focus of research in social psychology (see Bargh, Chaiken, Govender, & Pratto, 1992; Berger & Mitchell, 1989; Doll & Ajzen, 1992; Fazio, 1986, 1990a; Fazio, Powell, & Williams, 1989; Petty & Krosnick, in press), and some of these ideas have also been applied to leisure research (Manfredo, Yuan, & McGuire, 1992). The above discussion makes clear that to study salience and its relation to belief strength, it is necessary to assess salience not as a discrete property of beliefs but on a continuum that ranges from little or no salience to immediate availability in memory, i.e., high salience. The study reported in the present article was designed to contribute to this effort by examining the validity and utility of a quantitative measure of belief salience, based on response latencies. Fazio and his associates (Fazio, 1986; Fazio, Chen, McDonel, & Sherman, 1982) were the first to propose that latencies of responses to attitudinal questions could be used to assess an attitude's accessibility in memory, i.e., its salience. The present study extended this logic to measures of beliefs, and compared the latency method to the frequency-of-elicitation procedure.

Several specific hypotheses were tested. (1) Beliefs about leisure activities identified as salient in a given population by the frequency–of–elicitation method have lower response latencies than beliefs identified as nonsalient. Confirmation of this hypothesis provides evidence for the convergent validity of the frequency and latency methods for the identification of salient costs and benefits associated with leisure activities. (2) There is correspondence between the degree of salience of different beliefs, as measured by response latency, and confidence in the beliefs, as indicated by the degree of agreement or disagreement with the belief statements. This hypothesis is based on the idea that increased belief strength is generally reflected in greater agreement with a statement expressing the belief in question as well as in greater accessibility of the belief in memory. (3) A given belief's correlation with a standard attitude measure increases in direct

proportion to its degree of salience. This hypothesis follows from the expectancy–value model in which highly salient beliefs have a greater impact on attitudes than beliefs that are less salient. (4) The final hypothesis is two–fold, and it deals with the correlation between standard and expectancy–value (belief–based) measures of attitudes toward leisure activities. (a) In line with the assumption that attitudes are determined by salient beliefs, it is predicted that the correlation between standard and belief–based measures of attitude is stronger when the expectancy–value measure is based on salient rather than nonsalient beliefs. (b) The correlation between standard and belief–based attitude measures is predicted to be particularly strong among respondents with highly accessible attitudes (attitudes with low response latencies), as compared to respondents whose attitudes are less accessible. This hypothesis is based on the assumption that accessible attitudes are stronger and are held with greater confidence. We expect that such attitudes are anchored more firmly in their cognitive foundation of beliefs.

Method

Preliminary work was required to select a small number of leisure activities for the main study and to elicit salient beliefs about each of the activities selected.

Pilot Study

Participants in the pilot research were undergraduate college students at the University of Massachusetts, the same population later used in the main study (see below for details). In the first phase of the pilot study, 76 participants completed a questionnaire that dealt with 16 leisure activities. Based on reported frequency of participation in each activity during the preceding year (on a 6-point scale from never to over 20 times), the following six behaviors were selected for further investigation: hiking, mountain climbing, recreational biking, boating (sailing, canoeing, etc.), downhill skiing, and recreational biking. The leisure activities selected for study were those

activities performed by college students that showed a wide range of participation. Although this selection criterion may limit the generalizability of our results, it was necessary for methodological reasons.

Salient behavioral beliefs were elicited from 70 undergraduate students in the second phase of the pilot study. Past research has shown that beliefs about leisure activities can usefully be classified into two types, instrumental and affective (Ajzen & Driver, 1991; Godin, 1987). Accordingly, salient beliefs with respect to each of the six behaviors selected for investigation were elicited by means of two types of questions in different subsamples. For the elicitation of instrumental beliefs, 34 participants were instructed to list the possible costs and benefits of the different recreational activities. To take mountain climbing as an example, two questions were posed: (1) "What are the possible costs or losses of mountain climbing?" and (2) "What are the possible benefits or gains of mountain climbing?" Each question was followed by several blank lines, and the respondents were asked to write one cost or benefit per line, filling as many lines as they needed to list all the costs and benefits that came to mind. They were told that "it is OK for different activities to have some of the same costs or benefits; just list them again." In the second subsample (N = 36), two questions were in a similar fashion designed to elicit affective beliefs. These questions requested that the respondents list the things they liked or enjoyed about each activity, and the things they disliked or hated about the activity.

The elicitation phase thus provided four sets of responses consisting of positive or negative beliefs of an instrumental or affective type. The responses in each of these four categories were separately content analyzed, similar responses were grouped together, and the frequency with which each belief had been mentioned was tallied. Within each response category, the two most frequently mentioned beliefs were selected as the salient beliefs in that category; no salient belief was

mentioned by fewer than 30% of the respondents. The only restriction imposed was that the instrumental and affective beliefs not be the same.[1] In addition, two beliefs in each category that were mentioned by only one respondent were also selected to represent the nonsalient beliefs for that category. This selection procedure resulted in a total of 16 beliefs for each of the six leisure activities, in a 2 (instrumental vs. affective) X 2 (positive vs. negative) X 2 (salient vs. nonsalient) design. The kinds of beliefs obtained in this manner are illustrated in Table 1 with respect to one of the activities, mountain climbing.

Insert Table 1 about here

Main Study

Respondents. Sixty-nine undergraduate students at the University of Massachusetts took part in the main study (52 females and 17 males). The participants were recruited in different psychology classes and received extra class credit for their participation. The students ranged in age from 17 to 40, with a mean age of 19. Although not a random or representative sample of the total student population at the University of Massachusetts, the participants spanned a broad spectrum of the student body. Of the 60 participants who had declared a major, 11 were in psychology, 10 were in management, and 31 majored in a variety of specialties including pre-medical, English, engineering, communication, nursing, education, and sociology. Eight participants failed to provide information about their major field of study.

Procedure. The participants completed a computer-administered questionnaire that was described as dealing with their views concerning outdoor recreational activities. The questionnaire was administered in two small laboratory rooms each containing two computers, and it took between

30 and 50 minutes to complete. Informed consent was obtained immediately after the study had been explained. The participants were then seated in front of a computer and told to follow the instructions on the screen. At the end of the session they received a written explanation of the study and all questions were fully answered.

Questionnaire. Initial instructions informed the participants that they would be shown a variety of statements about recreational activities, each statement on a separate screen accompanied by several response alternatives. They would reply by pressing the number in front of the alternative that best represented their views.

The questionnaire contained five sections that assessed different constructs. Each section was preceded by instructions informing the respondent about the response scale used in that section and a request to keep the appropriate number of fingers above the response keys. In addition, following Fazio's (1990b) recommendation, the participants were asked to keep two things in mind. "First, and above all, be accurate. Don't be in such a hurry to respond that you regret your decision. Second, while being accurate, try to respond as quickly as possible. So, you should try to maximize both the speed and the accuracy of your responses." The computer recorded the response given and, unbeknown to the participant, the response time from presentation of a question to depression of the response key.

Each section of the questionnaire contained a number of items dealing with each of the six recreational activities. These items were preceded by five practice items that used the same response format but dealt with unrelated leisure behaviors (playing tennis, outdoor swimming, back-country camping, salt-water fishing, and snorkeling or diving). Presentation of the five sections was systematically varied to produce four different orders. To obtain an uncontaminated measure of response latencies for salient and nonsalient beliefs, the first section obtained binary belief measures

by asking respondents to indicate whether they agreed or disagreed with the various belief statements that had been constructed for purposes of the study. In addition to the initial 5 practice items, the section contained 96 belief statements, 16 statements with respect to each of the 6 leisure activities. The 16 statements consisted of 2 statements for each of the 8 kinds of beliefs shown in Table 1. The belief statements were presented in random order, with the restriction that items referring to a given activity not follow each other. The same random order was retained across respondents.

The same set of 16 belief statements, presented in a different random order, appeared again in a separate section toward the end of the questionnaire, accompanied by a 5-point belief strength scale: *extremely likely, likely, neither likely nor unlikely, unlikely,* and *extremely unlikely*. This more precise belief measure was needed for the computation of the summary index in the EV model. The binary belief measures at the beginning of the questionnaire were designed to obtain latency scores that would be uncontaminated by time needed to decide between five different response alternatives.

In between the binary and 5-point belief measures were two sections that assessed *evaluations* of the different outcomes associated with each of the leisure activities. These sections again presented the items in different random orders, preceded by 5 practice items. The 5-point response scale in one section was affective in nature (*extremely pleasant–extremely unpleasant*), in the other section it was instrumental in nature (*extremely beneficial–extremely harmful*). For example, one of the affective items asked respondents to evaluate the statement, "Being scared of heights in mountain climbing" on the *extremely pleasant–extremely unpleasant* scale, while the corresponding instrumental item obtaining a rating of the same statement on the *extremely beneficial–extremely*

harmful scale. Approximately one-half the participants provided the affective ratings first, followed by the instrumental ratings, and the order was reversed for the remaining participants.

The fifth section of the questionnaire obtained a standard measure of attitude toward each of the leisure activities by means of four 5-point bipolar adjective scales. Each activity was rated on the following scales, again preceded by 5 practice items, with activities interspersed and scales presented in random order: *extremely foolish–extremely wise, extremely attractive–extremely unattractive, extremely useless–extremely useful, extremely unpleasant–extremely pleasant.* The standard attitudes section appeared after the 5-point belief section for approximately one-half the respondents, while for the other half it appeared immediately after the binary belief section.

The questionnaire concluded by asking respondents to enter their age, sex, and major field of study, and thanking them for their participation.

Results

Hypothesis 1: Belief Salience and Accessibility

We first tested the hypothesis that leisure beliefs identified as salient by the frequency method have lower response latencies, i.e., are more accessible, than beliefs identified as nonsalient. In addition, although we had developed no specific expectations, we also examined the effect of belief type (instrumental versus affective) and belief valence (positive versus negative) on response latencies. Since beliefs were assessed by means of binary and 5-point response scales, the analysis had four within-subjects factors with 2 levels each: salient versus nonsalient beliefs, binary versus five-point belief scale, positive versus negative belief valence, and instrumental versus affective belief type.

Because the distributions of response latencies were found to be positively skewed, we followed the practice of Fazio and his associates (Fazio, Chen, McDonel, & Sherman, 1982; Powell

& Fazio, 1984) and subjected the recorded latencies to reciprocal transformations. All data analyses were performed on the transformed scores, but for ease of discussion we report descriptive statistics in terms of original latencies. We also entertained the possibility that measures of response latency can contain error variance due to individual differences in speed of responding that are unrelated to accessibility (see Fazio, 1990). To test for this possibility, the mean latency of the practice items in the different sections of the questionnaire was subtracted from the belief latencies prior to analysis. The results were unaffected by this adjustment. We present the results of statistical analyses involving the adjusted response latencies, but because the numerical values of these latencies are difficult to interpret, we use the unadjusted values to report mean latencies.

A 4-way repeated measures analysis of variance was performed on the belief latencies. The four factors were *salience* as established by the frequency method (salient versus nonsalient), *response format* (binary versus 5-point scale), *belief type* (affective versus instrumental) and *belief valence* (positive versus negative). The dependent measure was the mean over 12 belief latencies, 2 beliefs averaged over the 6 leisure activities, in each of the 16 cells of the design. These means are shown in Table 2. Separate analyses of the response latencies for each of the 6 activities resulted in the same pattern across all behaviors.[2]

Insert Table 2 about here

The analysis of variance revealed several significant main effects and interactions. Of greatest interest for our purposes, the expected main effect of belief salience was highly significant: response times, in seconds, were shorter for salient ($M = 2.57$) than for nonsalient ($M = 2.94$) beliefs; $F(1, 68) = 183.50$, $p < .001$. This main effect was tempered by significant interactions

between salience and belief valence, $F(1, 68) = 17.91$, $p < .001$, and between salience and belief type, $F(1, 68) = 6.25$, $p < .05$. Examination of the means revealed that the effect of salience was greater for positive than for negative beliefs; the mean latency difference between the salient and nonsalient beliefs was .55 s for positive beliefs and .31 s for negative beliefs. Similarly, the effect due to salience was stronger for the binary belief measure than for the 5-point response scale. In the case of the binary measure, the latency difference between salient and nonsalient beliefs was .50 s, compared to .25 s in the case of the 5-point scale.

Overall then, and consistent with our first hypothesis, the response latency measures validated the selection of modal salient beliefs by means of the frequency–of–elicitation method. Although influenced to some extent by other factors, the latencies of salient beliefs identified by the frequency method were always significantly lower than the latencies of nonsalient beliefs.

Not directly relevant to the hypotheses of the present study, several other significant effects are worth noting. First, there was a significant main effect due to belief valence, $F(1, 68) = 103.60$, $p < .001$. Response latencies were substantially shorter for positive beliefs ($M = 2.42$) than for negative beliefs ($M = 3.00$). It appears that, at least in the domain of recreational activities, beliefs that associate an activity with positive consequences are more accessible than are beliefs that associate the activity with negative consequences. This latency bias in favor of positive beliefs was modified by a significant interaction with belief type (affective versus instrumental), $F(1, 68) = 21.97$, $p < .001$. The difference in response latencies between positive and negative items was greater for instrumental beliefs (.68 s) than for affective beliefs (.32 s).

Second, the three-way interaction involving salience, belief type, and response format was also significant; $F(1, 68) = 10.02$, $p < .01$. The pattern of this interaction indicated that the difference in accessibility between instrumental and affective beliefs emerged primarily for nonsalient beliefs,

but this effect was more pronounced in the case of the binary, as compared to the 5-point response format.

Hypothesis 2: Belief Salience and Agreement with Belief Statements

Binary belief measures. Three analyses of variance were performed to examine the effects of belief salience on the strength with which beliefs are held. First, it was expected that respondents would be more likely to agree with salient than nonsalient beliefs. This follows from the fact that the nonsalient beliefs were mentioned spontaneously by only very few respondents in the elicitation study. To test this prediction, a three-way repeated measures analysis of variance was performed on the binary belief measures which provided a simple index of agreement. In this analysis, an *agree* response was scored +1 and a *disagree* response -1, and these values were averaged over the two beliefs of each kind and over the 6 leisure behaviors. The three factors in the analysis were belief salience, valence, and type. As predicted in our second hypothesis, the results revealed a significant main effect of salience [$F(1, 68) = 149.37$, $p < .001$], such that there was considerably more agreement with salient beliefs ($M = .53$) than with nonsalient beliefs ($M = .23$).

Again not directly relevant to our main hypotheses, the analysis also revealed significant main effects of belief valence (positive versus negative beliefs) and belief type (affective versus instrumental), as well as a significant three-way interaction between salience, valence, and type of belief. Although significant [$F(1, 68) = 4.42$, $p < .05$], the effect of belief type was very small; there was a tendency for greater agreement with instrumental ($M = .40$) than affective ($M = .36$) beliefs. Perhaps more interesting, there was a strong main effect of belief valence, $F(1, 68) = 431.75$, $p < .001$; respondents were much more likely to agree with positive beliefs ($M = .70$) than with negative beliefs about the leisure activities ($M = .06$). The three-way interaction

[$F(1, 68) = 14.90$, $p < .001$] was due to small variations in the effect of belief type for salient versus nonsalient beliefs, and for positive versus negative beliefs.

Five-point belief measures. A second analysis concerning belief strength was performed on the five-point belief measure, scored from +2 (*extremely likely*) to -2 (*extremely unlikely*), again involving the independent variables of belief salience, affect, and type. Based on our second hypothesis, it was predicted that degree of agreement would be greater for salient than for nonsalient beliefs. Consistent with this prediction, there was a significant main effect of belief salience such that likelihood ratings were higher for salient ($M = .91$) than nonsalient beliefs ($M = .68$), $F(1, 68) = 107.64$, $p < .001$.

The pattern of results for the remaining independent variables was similar to that obtained for the binary measure, except that the effect of belief type was not significant. Degree of agreement was greater for positive ($M = 1.19$) than negative beliefs ($M = .39$), $F(1, 68) = 209.90$, $p < .001$, and there was a significant three-way interaction [$F(1, 68) = 33.10$, $p < .001$] due again to minor variations in the effect of belief type for salient versus nonsalient beliefs and for positive versus negative beliefs.

Belief polarization. Another way of defining belief strength is to assess extremity, that is, the degree to which belief ratings are polarized. This was done by computing the absolute values of responses on the five-point belief scales. The analysis of variance on extremity scores showed the pattern of results obtained before: significant main effects for salience, affect, and type of belief, as well as a significant three-way interaction. Most important for our purposes, the mean polarization was 1.20 for salient beliefs versus 1.02 for nonsalient beliefs, $F(1, 68) = 149.37$, $p < .001$, again providing support for our second hypothesis.

Correlations. Our second hypothesis that the strength of a given belief corresponds to its degree of salience was also supported in a correlational analysis. The latencies across the 16 beliefs for each behavior were correlated with the 5-point likelihood measure for those beliefs, resulting in 69 correlations—one for each respondent. Following Fisher's r-to-z transformation, these correlations were averaged across respondents and then retransformed to correlation coefficients. The average correlations ranged from .21 for animal watching to .35 for mountain climbing, with a mean correlation across activities of .27 ($p < .05$).

Hypothesis 3: Relations Between Individual Beliefs and Attitudes

The belief latency measures permitted examination of the hypothesis that degree of agreement with any single belief would correlate with the standard attitude score in direct proportion to its degree of salience. This hypothesis was tested separately for the different leisure behaviors. Each belief, using the 5–point likelihood scale, was first correlated with the standard attitude, yielding 16 correlation coefficients. In addition, for each belief the average latency across respondents (on the binary response scale) was computed. Finally, these average latencies were correlated with the correlation coefficients across the 16 beliefs. The results of this analysis provided support for the hypothesis: the more salient a given belief, as defined by its response latency, the better it tended to correlate with the standard attitude measure. The correlations ranged from .16 for boating to .66 for animal watching, and the average correlation across activities was .35 ($p < .05$).

Hypothesis 4: Correlations Between Standard and Belief-Based Attitude Measures

(a) Salience of beliefs. Two summative belief indices were computed with respect to each of the leisure activities, one based on the 8 beliefs that had been identified as salient in the pilot study, the other on the 8 nonsalient beliefs. Recall that with respect to each belief, respondents provided measures of belief strength and of subjective values associated with the activity's consequence. For

purposes of this and subsequent analyses, only the 5-point (*extremely likely–extremely unlikely*) belief scale was used. Two evaluative measures were available, one instrumental in nature (*beneficial–harmful)*, the other affective in nature (*pleasant–unpleasant*), both assessed on 5-point scales. Because these scales correlated highly (the average correlation across beliefs and leisure activities was .62) and produced the same results, they were combined by computing the average of the two evaluative ratings. The likelihood and evaluation ratings (i.e., b_i and e_i in Equation 1) were scored in a bipolar fashion from -2 to +2, multiplied with each other, and summed across the set of 8 salient or 8 nonsalient beliefs.[3]

A standard measure of attitude toward each of the six leisure activities was obtained by averaging responses to the four evaluative bipolar adjective scales on which each of the activities had been rated. The correlations between this standard attitude measure and the two expectancy–value attitude measures are shown in the top half of Table 3. Although the differences in correlations involving salient and nonsalient expectancy–value measures were small (the mean correlation was .59 for salient beliefs and .54 for nonsalient beliefs), five of the six differences ($p < .05$ by sign test) were such that the index based on salient beliefs correlated more highly with the standard measure than did the index based on nonsalient beliefs. Only with respect to hiking was there a small difference in the opposite direction.

Insert Table 3 about here

The observed differences between the EV indices involving salient and nonsalient beliefs can perhaps in part be accounted for by differences in reliability. Alpha reliability coefficients for the index based on salient beliefs ranged from .62 for skiing to .78 for animal watching, with an average

alpha of .70. For the index based on nonsalient beliefs, the alpha coefficients ranged from .48 for animal watching to .74 for skiing, and the average reliability coefficient was .62. With respect to the 4-item standard measure of attitude, alpha coefficients ranged from .72 for boating to .91 for animal watching, with an average coefficient of .84.

The bottom half of Table 3 shows the correlations between the expectancy–value and standard attitude measures after correction for attenuation due to unreliability. It can be seen that the differences between salient and nonsalient EV indices are generally smaller, although still in favor of the salient belief index for four of the six leisure activities (not significant, by sign test). On the average, the disattenuated correlations were .81 for the index based on salient beliefs versus .78 for the index based on nonsalient beliefs.

(b) Salience of attitudes. Latency measures were available for responses to the four evaluative scales that constituted the standard attitude measure. To examine the effect of attitude accessibility, the average over these four latencies was computed and respondents were divided at the median into high and low latency groups. This procedure was repeated for each of the six leisure activities. Separate correlations were then computed within the high and low attitude accessibility subgroups. The correlations compared the standard attitude score to the attitude index based on the eight salient beliefs identified by the frequency-of-elicitation method. The results of this analysis are shown in Table 4.

Insert Table 4 about here

It can be seen that the correlations between standard and EV attitude scores were stronger when responses to the standard attitude scale were high rather than low in accessibility. The mean

correlations across activities were .64 under high attitude accessibility compared to a mean correlation of .54 under low attitude accessibility. Five of the six differences were in the expected direction ($p < .05$ by sign test); the only exception again occurred with respect to hiking where there was a small difference in the opposite direction.

Discussion

The results of the present study provide useful information about the identification and measurement of leisure–related beliefs. Salient beliefs about different leisure activities, identified by high frequency of emission in the research population, were shown to have substantially lower response latencies than nonsalient beliefs. This finding suggests that salient beliefs are more accessible in memory, and that response latency can be used as an alternative means of identifying the beliefs that are salient for an individual or in a given population. Moreover, response latencies permit easy quantification of the degree of salience for each belief. Using this quantitative measure of belief salience, it was possible to show that the more salient a belief for a given individual, the more that individual tended to agree with the corresponding belief statement.

Salient beliefs, as identified by frequency of emission, were found to differ from nonsalient beliefs in other ways as well. Specifically, frequently emitted beliefs were more likely to produce agreement than beliefs emitted infrequently, and responses to statements concerning the former beliefs were more polarized. In sum, beliefs about leisure activities that are easily accessible in memory, with which people tend to agree, and which they hold with a great deal of strength tend to be the beliefs emitted frequently during free elicitation.

The distinction between affective and instrumental beliefs had only a minor effect on response latencies. Responses to instrumental belief items tended to be produced somewhat faster than responses to affective items. There was again a corresponding effect on agreement, such that

respondents were somewhat more likely to agree with the instrumental than with the affective belief statements.

The study also examined the relations between leisure beliefs and attitudes. Accessibility of leisure attitudes, as measured by latency of responses to the standard evaluative items, was found to moderate the correlation between the EV and standard attitude scores, such that the summation model was supported better when attitudes were highly accessible.

Finally, consistent with the expectancy–value model, indices formed by summing over the products of beliefs and evaluations correlated significantly with a standard measure of attitude. The correlations between the expectancy–value and the standard measures tended to be stronger for the set of salient beliefs than for the set of nonsalient beliefs, although this difference seemed to be due at least in part to the greater reliability of the salient belief index. At first glance, the fact that an EV measure based on salient beliefs did not correlate much better with the standard attitude scores than did an EV measure based on nonsalient beliefs appears to be inconsistent with the EV model. It should be realized, however, that—as noted in the introduction—attitudes can be assessed on the basis of any set of belief statements, whether salient or not, and a measure based on nonsalient beliefs may well correlate with a standard measure of the same attitude.[4] The difference, according to the expectancy–value model, is that the salient beliefs are the *determinants* of the attitude at the time of measurement. Salient beliefs provide information that helps us to understand why people hold certain attitudes. Nonsalient beliefs can be used to measure and predict attitudes, but they do not explain them. Of course, the correlational data available in the present study cannot be used to test the hypothesized causal effect of salient beliefs on attitudes.

In addition to its implications for attitude theory and measurement, the research reported in the present article can help guide applied research in leisure behavior. Specifically, it suggests valid

means for identifying the perceived costs and benefits of leisure that are salient in a given context. The two methods examined are perhaps best seen as complementing each other. The frequency-of-elicitation method can be used to construct a list of beliefs salient for a given individual, or a list of beliefs salient in a certain population. This method can be supplemented by a response-latency measure when a quantitative index of belief salience is required. Examination of the identified beliefs, and their degree of salience, provides useful information about the considerations that are at least in part responsible for leisure attitudes and for people's readiness to engage in leisure behavior.

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Footnotes

1. There was some overlap in the responses elicited by the instrumental and affective questions, but only few of the most frequently mentioned beliefs were the same.

2. No significant or systematic effects were found in this or the subsequent analyses for the order in which the different sections of the questionnaire were presented. Order of presentation is therefore not further discussed.

3. The bipolar scaling procedure was validated by means of an optimal scaling analysis which determines the most appropriate scaling of the likelihood and evaluation measures (see Ajzen, 1991; Evans, 1991).

4. In fact, standard attitude scales constructed by means of Thurstone or Likert scaling procedures are comprised of statements constructed by the investigator, statements that usually do not correspond to salient beliefs (see Fishbein & Ajzen, 1975).

Table 1
Examples of Beliefs Varying in Salience, Valence, and Evaluative Type

Salient, positive, instrumental: "Mountain climbing helps you get good exercise and build endurance."

Salient, positive, affective: "Mountain climbing is thrilling, challenging, and exciting."

Salient, negative, instrumental: "By mountain climbing, you take the risk of falling and getting injured."

Salient, negative, affective: "Mountain climbing arouses fear of height."

Nonsalient, positive, instrumental: "Mountain climbing lets you meet people."

Nonsalient, positive, affective: "Mountain climbing lets you experience solitude."

Nonsalient, negative, instrumental: "While mountain climbing, you can be attacked by wild animals."

Nonsalient, negative, affective: "For mountain climbing you have to wear ugly shoes."

Table 2
Mean Response Latencies (in Seconds) by Belief Category

	Binary format				Five-point format			
	Affective		Instrumental		Affective		Instrumental	
Salience	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Salient	2.70	2.86	2.38	3.13	2.13	2.56	1.91	2.86
Nonsalient	3.03	3.33	3.13	3.57	2.38	2.78	2.38	2.94

Table 3
Correlations Between Standard and Salient Expectancy–Value Attitude Measures

	Animal watching	Biking	Boating	Mountain climbing	Hiking	Skiing
Uncorrected						
Salient beliefs	.60	.53	.56	.60	.61	.64
Nonsalient beliefs	.51	.50	.54	.52	.62	.58
Corrected for attenuation						
Salient beliefs	.81	.70	.78	.78	.81	.90
Nonsalient beliefs	.77	.67	.78	.76	.90	.75

Note. All correlations are significant at $p < .001$. $N = 69$.

Table 4
Effect of Attitude Accessibility on Correlations Between Standard and Salient Expectancy–Value Attitude Measures

Attitude accessibility	Animal watching	Biking	Boating	Mountain climbing	Hiking	Skiing
High	.65	.55	.60	.66	.59	.74
Low	.49	.53	.52	.52	.62	.55

Note. All correlations are significant at $p < .001$. $N = 69$.